FIG.1

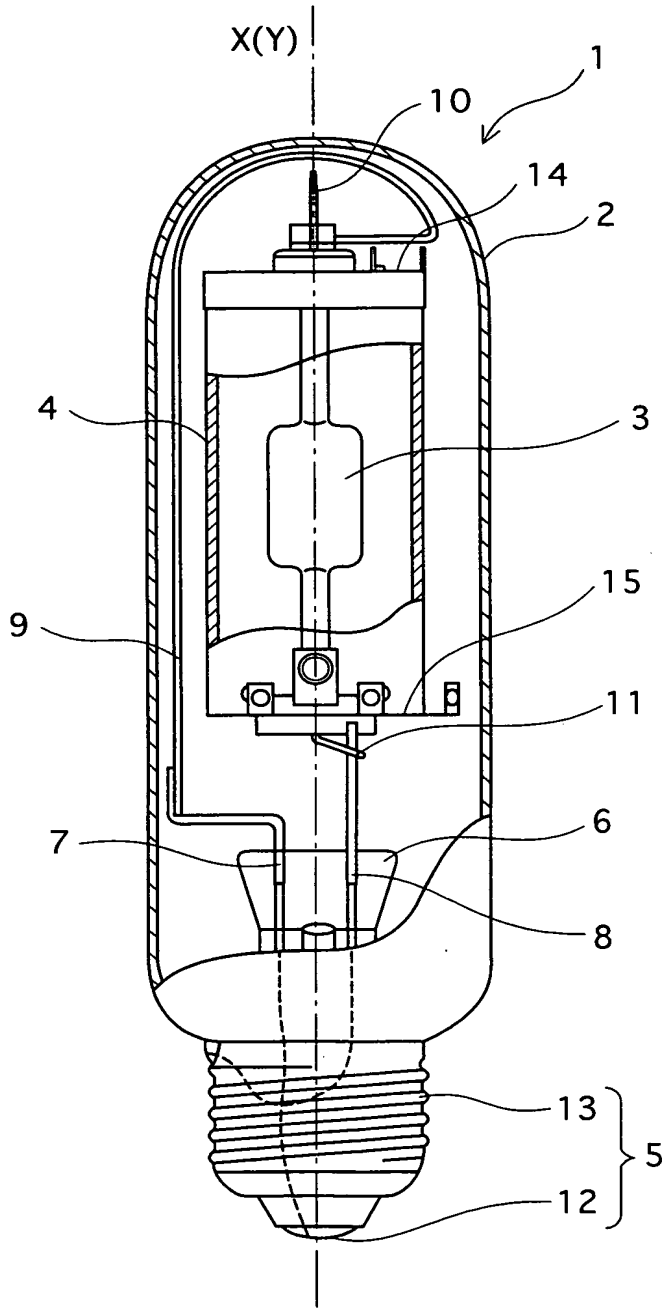

FIG.2

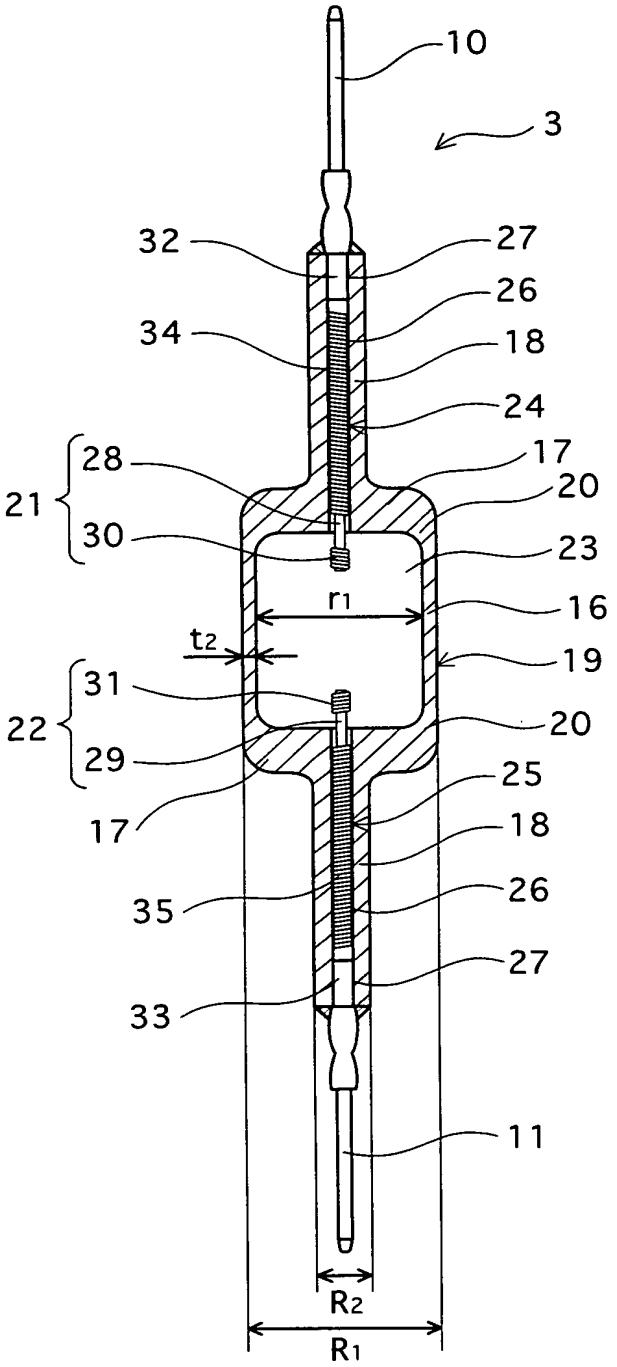
10
3
32
27
26
34
18
24
28
17
21
20
30
23
r1
16
t2
19
31
22
20
29
25
17
18
35
26
27
33
11
R2
R1

FIG.3

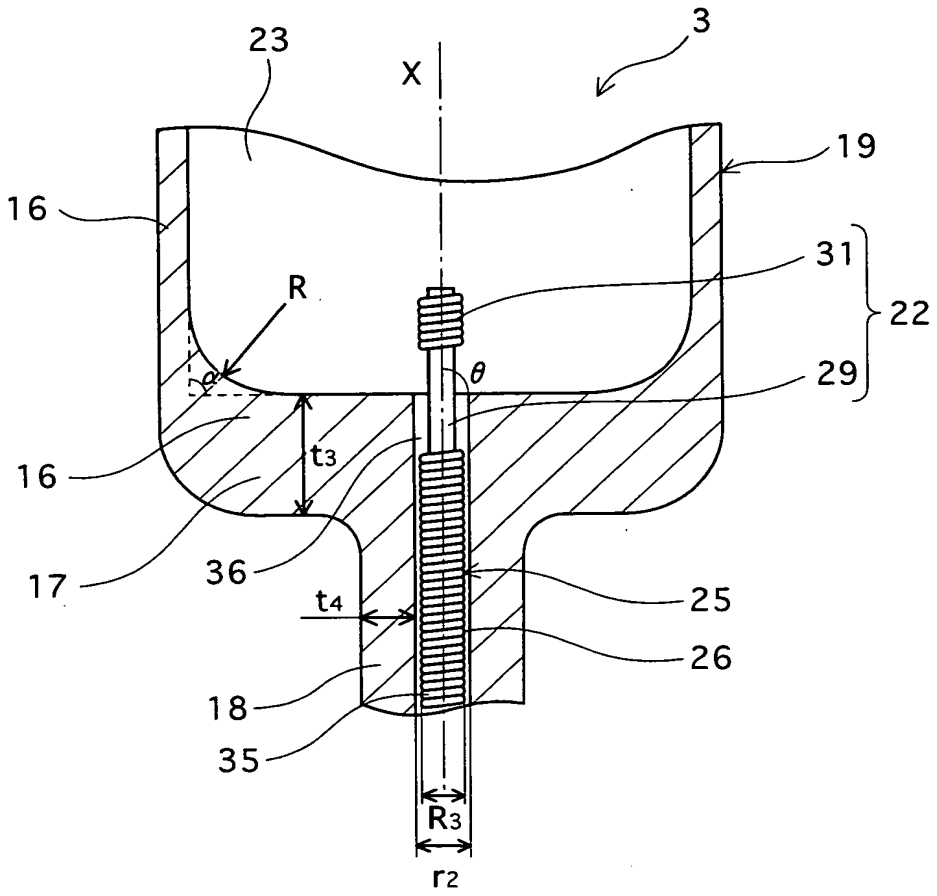

FIG.4

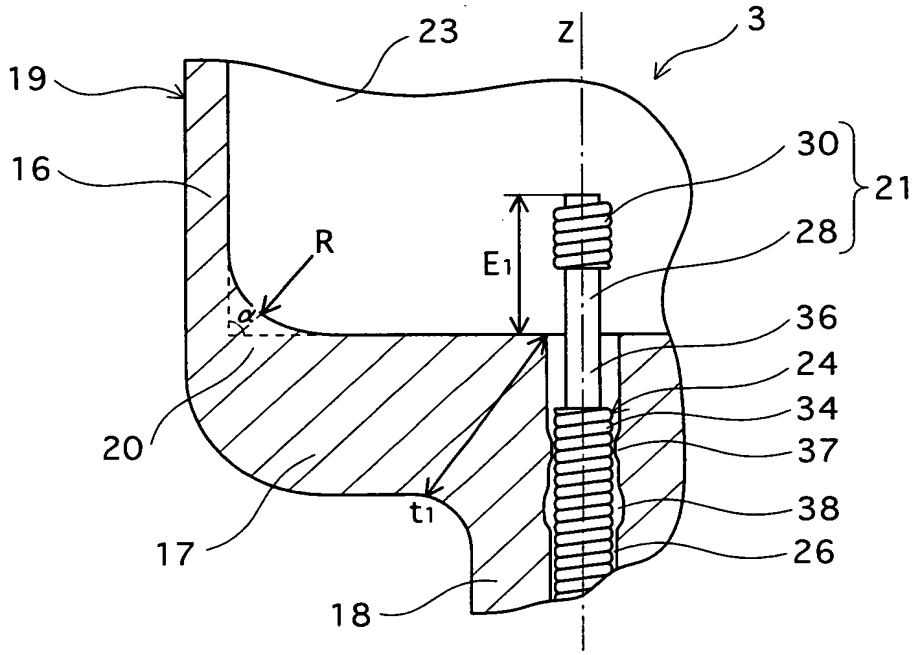

FIG.5

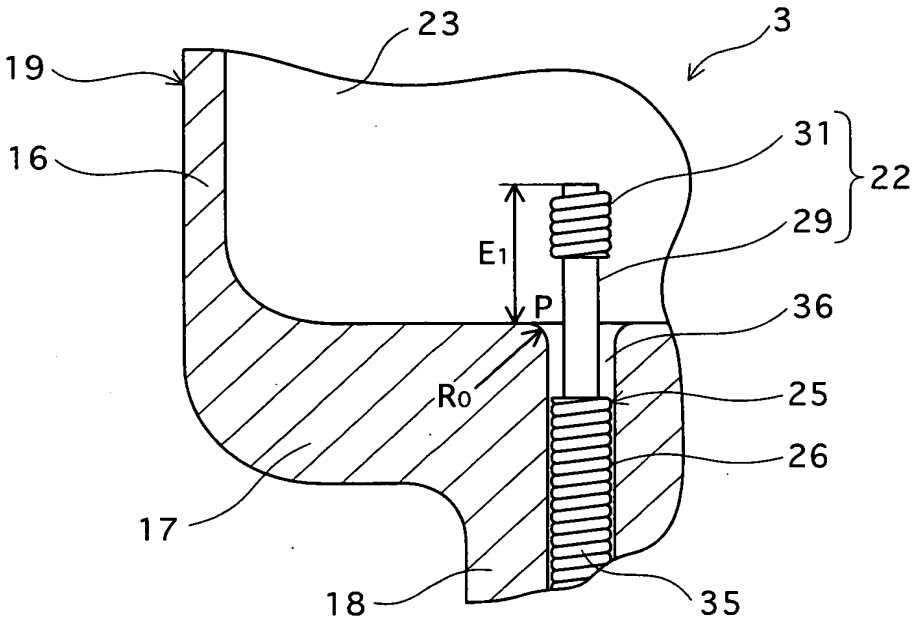

FIG.6

(TABLE 1)

	CURVATURE RADIUS R OF BOUNDARY REGION (mm)	OCCURRENCE OF CRACKS				
		AFTER 9000-HOUR LIGHTING PERIOD	AFTER 10000-HOUR LIGHTING PERIOD	AFTER 12000-HOUR LIGHTING PERIOD	AFTER 13000-HOUR LIGHTING PERIOD	ASSESSMENT
PRACTICAL EXAMPLE 1	0.5	NONE	NONE	NONE	—	VERY GOOD
PRACTICAL EXAMPLE 2	1.0	NONE	NONE	NONE	NONE	EXTREMELY GOOD
PRACTICAL EXAMPLE 3	1.8	NONE	NONE	NONE	NONE	EXTREMELY GOOD
PRACTICAL EXAMPLE 4	2.0	NONE	NONE	NONE	—	GOOD
PRACTICAL EXAMPLE 5	2.5	NONE	NONE	—	—	GOOD
COMPARATIVE EXAMPLE 1	0.3	NONE	—	—	—	BAD
COMPARATIVE EXAMPLE 2	2.7	NONE	—	—	—	BAD

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Joseph W. Price, Esq. 714-427-7420
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FIG.7

(TABLE 2)

	ELECTRODE PROJECTION LENGTH E_1(mm)	MINIMUM WALL THICKNESS t_1(mm)	OCCURRENCE OF CRACKS IN BOUNDARY REGION BETWEEN JOINING PORTION AND THIN TUBE PORTION	INITIAL LUMINOUS EFFICIENCY (lm/W)	ASSESSMENT
PRACTICAL EXAMPLE 6	0.4	1.0	OCCURRED	93	BAD
PRACTICAL EXAMPLE 7	0.4	3.5	OCCURRED	90	BAD
PRACTICAL EXAMPLE 8	0.5	0.9	OCCURRED	93	BAD
PRACTICAL EXAMPLE 8	0.5	1.0	NONE	93	GOOD
PRACTICAL EXAMPLE 10	0.5	3.5	NONE	90	GOOD
PRACTICAL EXAMPLE 11	0.5	3.6	NONE	87	BAD
PRACTICAL EXAMPLE 12	4.0	0.5	OCCURRED	92	BAD
PRACTICAL EXAMPLE 13	5.0	0.4	OCCURRED	91	BAD
PRACTICAL EXAMPLE 14	5.0	0.5	NONE	91	GOOD
PRACTICAL EXAMPLE 15	5.0	0.6	NONE	91	GOOD
PRACTICAL EXAMPLE 16	5.0	3.5	NONE	90	GOOD
PRACTICAL EXAMPLE 17	5.0	4.0	NONE	84	BAD
PRACTICAL EXAMPLE 18	5.5	0.5	NONE	91	BAD

FIG.8

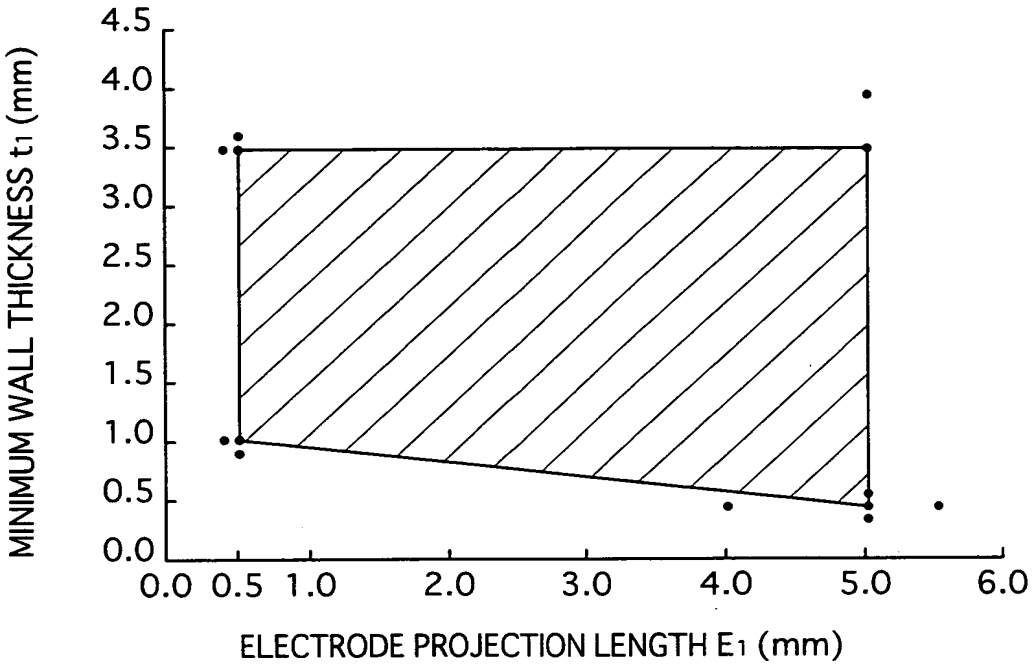
MINIMUM WALL THICKNESS t1 (mm)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0 0.5 1.0 2.0 3.0 4.0 5.0 6.0
ELECTRODE PROJECTION LENGTH E1 (mm)

FIG.9

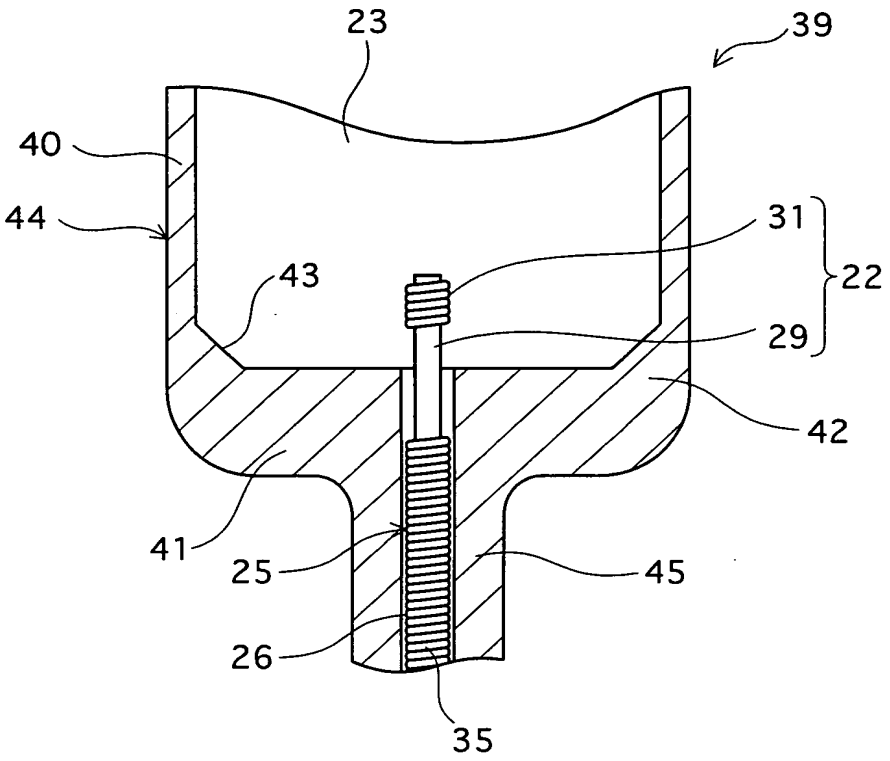

FIG.10

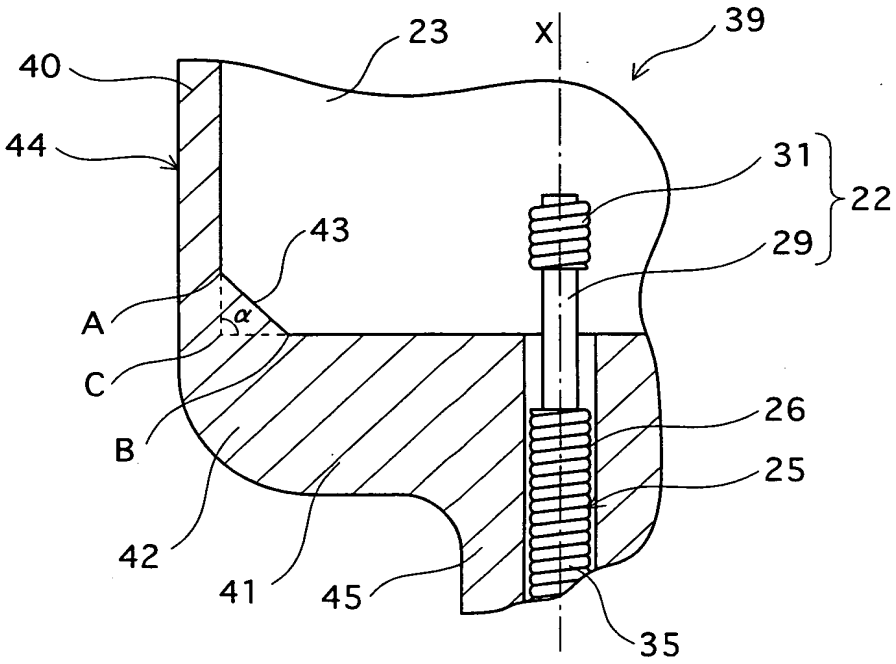

FIG.11

(TABLE 3)

	LENGTH OF LINE AC (mm)	LENGTH OF LINE BC (mm)	OCCURRENCE OF CRACKS			ASSESS-MENT
			AFTER 9000-HOUR LIGHTING PERIOD	AFTER 10000-HOUR LIGHTING PERIOD	AFTER 13000-HOUR LIGHTING PERIOD	
COMP. 3	0.4	0.4	NONE	—	—	BAD
COMP. 4		0.5	NONE	—	—	BAD
COMP. 5		1.5	NONE	—	—	BAD
COMP. 6		2.5	NONE	—	—	BAD
COMP. 7		2.6	NONE	—	—	BAD
PRAC. 19	0.5	0.5	NONE	NONE	NONE	GOOD
PRAC. 20		1.5	NONE	NONE	NONE	GOOD
PRAC. 21		2.5	NONE	NONE	NONE	GOOD
COMP. 8		0.4	NONE	—	—	BAD
COMP. 9		2.6	NONE	—	—	BAD
PRAC. 22	1.5	0.5	NONE	NONE	NONE	GOOD
PRAC. 23		1.5	NONE	NONE	NONE	GOOD
PRAC. 24		2.5	NONE	NONE	NONE	GOOD
COMP. 10		0.4	NONE	—	—	BAD
COMP. 11		2.6	NONE	—	—	BAD
PRAC. 25	2.5	0.5	NONE	NONE	NONE	GOOD
PRAC. 26		1.5	NONE	NONE	NONE	GOOD
PRAC. 27		2.5	NONE	NONE	NONE	GOOD
COMP. 12		0.4	NONE	—	—	BAD
COMP. 13		2.6	NONE	—	—	BAD
PRAC. 28	2.6	0.5	NONE	NONE	NONE	GOOD
PRAC. 29		1.5	NONE	NONE	NONE	GOOD
PRAC. 30		2.5	NONE	NONE	NONE	GOOD
COMP. 14		0.4	NONE	—	—	BAD
COMP. 15		2.6	NONE	—	—	BAD

FIG.12

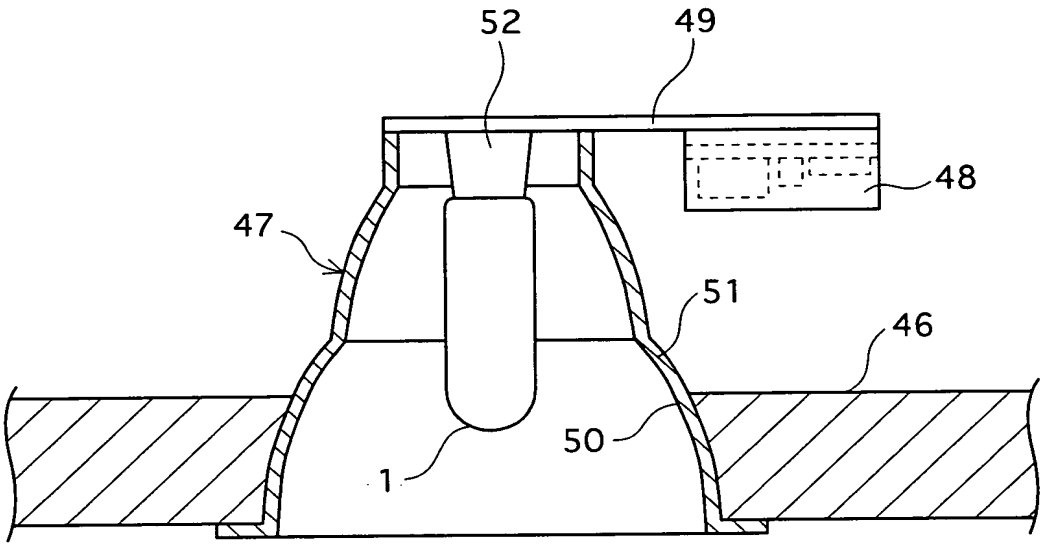

FIG. 13

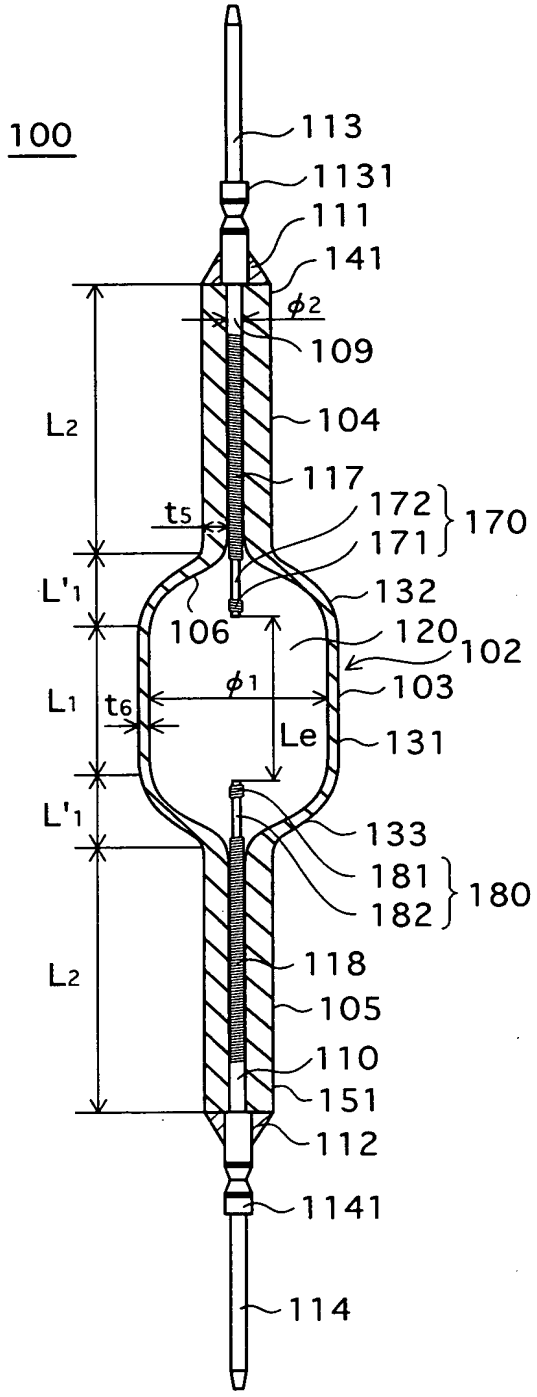
100
113
1131
111
141
φ2
109
104
117
172
171
170
132
120
102
103
131
133
181
182
180
118
105
110
151
112
1141
114
L2
t5
L'1
106
φ1
L1
t6
Le
L'1
L2

FIG. 14

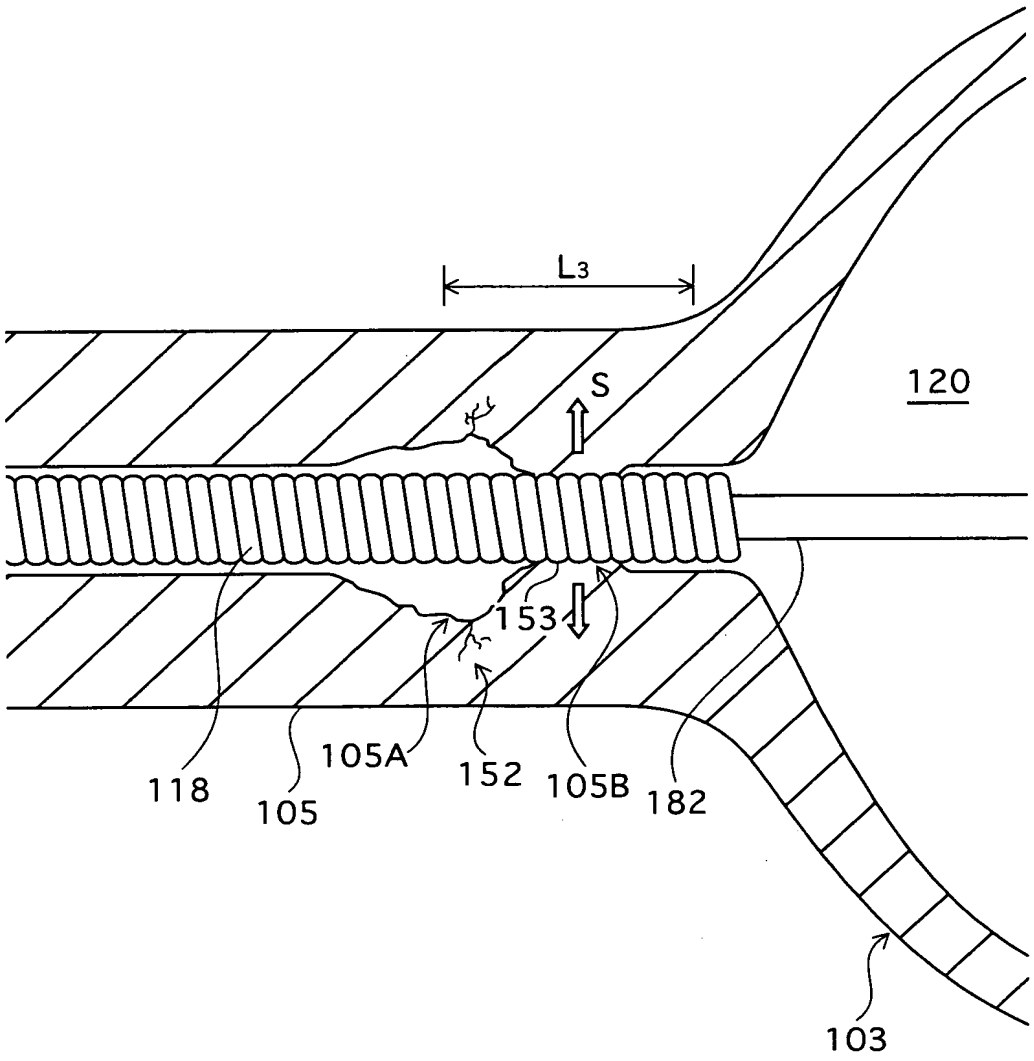

FIG. 15

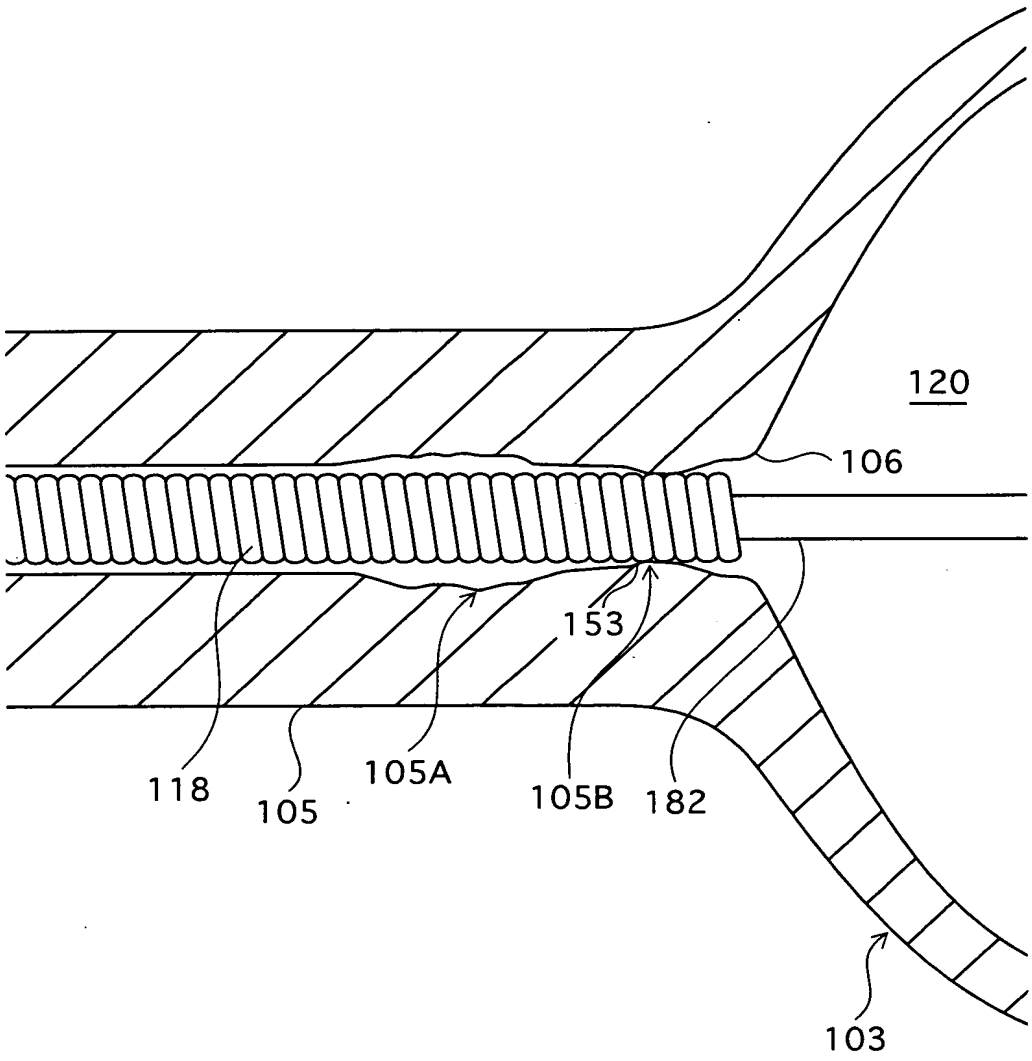

FIG.16

(TABLE 4)

BULB WALL LOADING [W/cm^2]	WALL THICKNESS OF THIN TUBE PORTION [mm]	CaI_2 COMPOSITION PROPORTION [MOLE %]				
		0	5	30	65	70
30	0.7				90 lm/W	86 lm/W
	0.8	92 lm/W	91 lm/W	90 lm/W	89 lm/W	85 lm/W
	1.0				88 lm/W	84 lm/W
	1.5				85 lm/W	81 lm/W

FIG.17

(TABLE 5)

BULB WALL LOADING [W/cm^2]	WALL THICKNESS OF THIN TUBE PORTION [mm]	CaI_2 COMPOSITION PROPORTION [MOLE %]				
		0	3	5	30	65
20	0.4	—	—	X	X	X
	0.5	—	—	○	○	○
	0.7	—	—	○	○	○
30	0.7	X	X	X	X	X
	0.8	X	X	○	○	○
	1.1	X	X	○	○	○
	1.5	○	○	○	○	○
40	1.0	—	—	X	X	X
	1.1	—	—	○	○	○
	1.3	—	—	○	○	○

FIG.18

(TABLE 6)

BULB WALL LOADING [W/cm^2]	MINIMUM WALL THICKNESS OF THIN TUBE PORTION [mm]	MAXIMUM WALL THICKNESS OF THIN TUBE PORTION [mm]
20	0.56	1.50
27	0.75	1.50
30	0.83	1.50
40	1.11	1.50

FIG.19

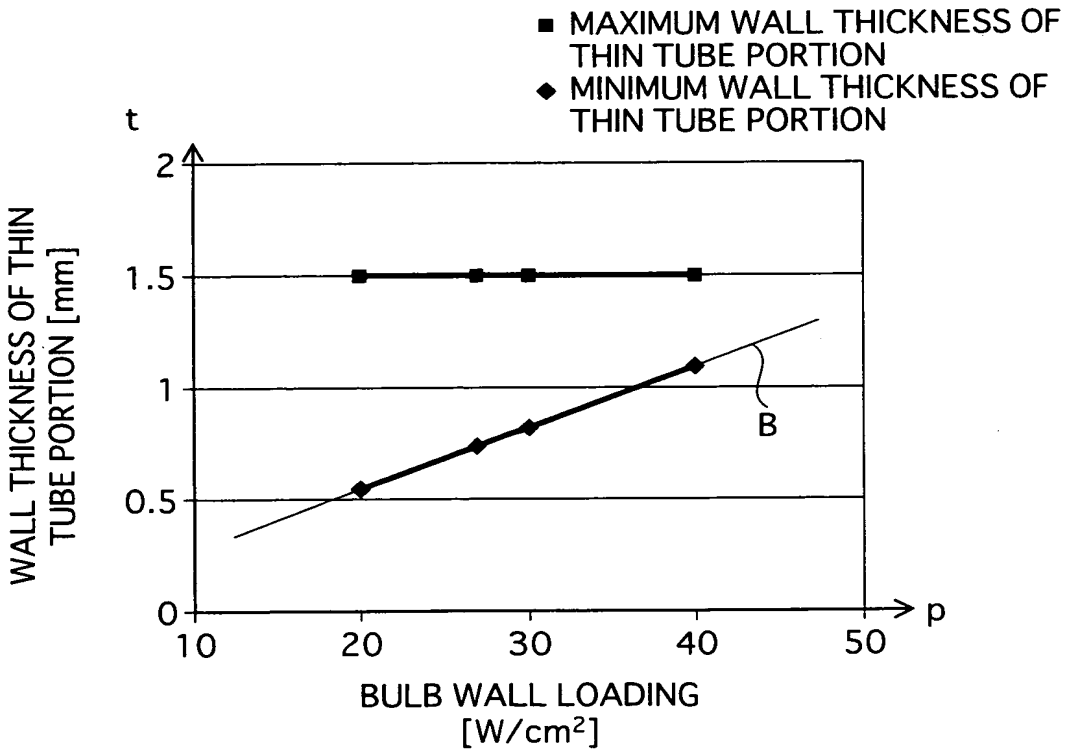

FIG.20

(TABLE 7)

BULB WALL LOADING [W/cm^2]	MINIMUM WALL THICKNESS OF MAIN TUBE PORTION [mm]	MAXIMUM WALL THICKNESS OF MAIN TUBE PORTION [mm]
20	0.35	0.56
27	0.47	0.76
30	0.53	0.84
40	0.70	1.12

FIG.21

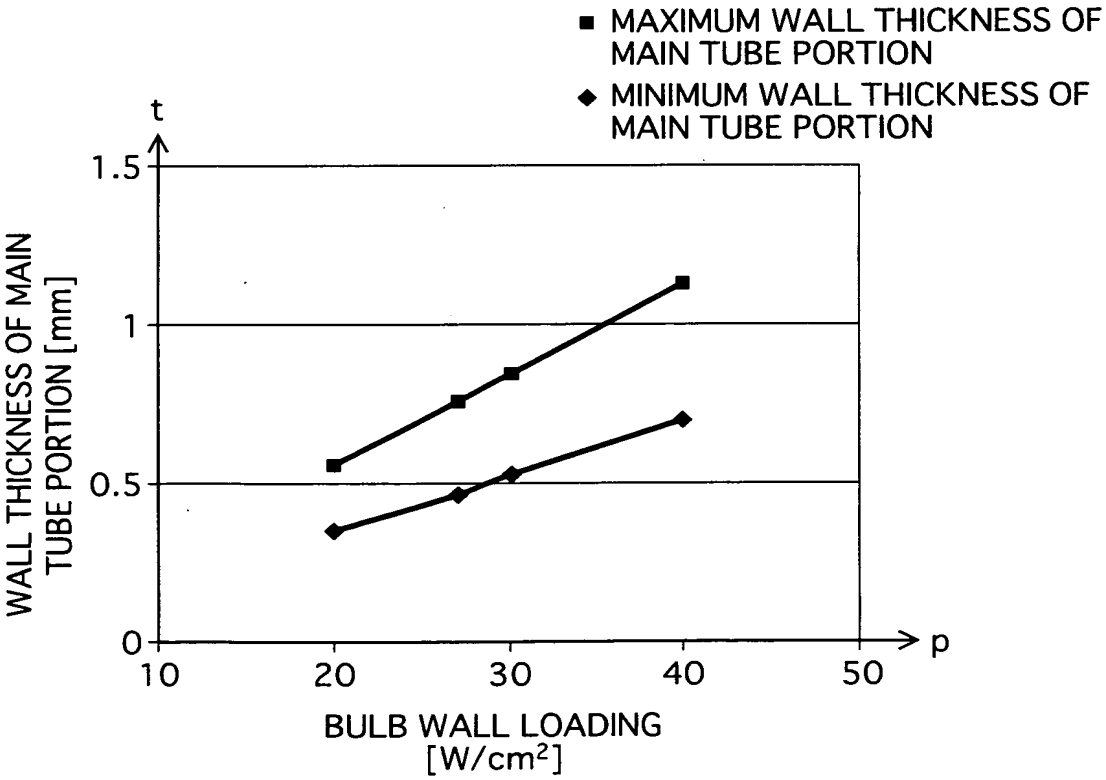

FIG.22

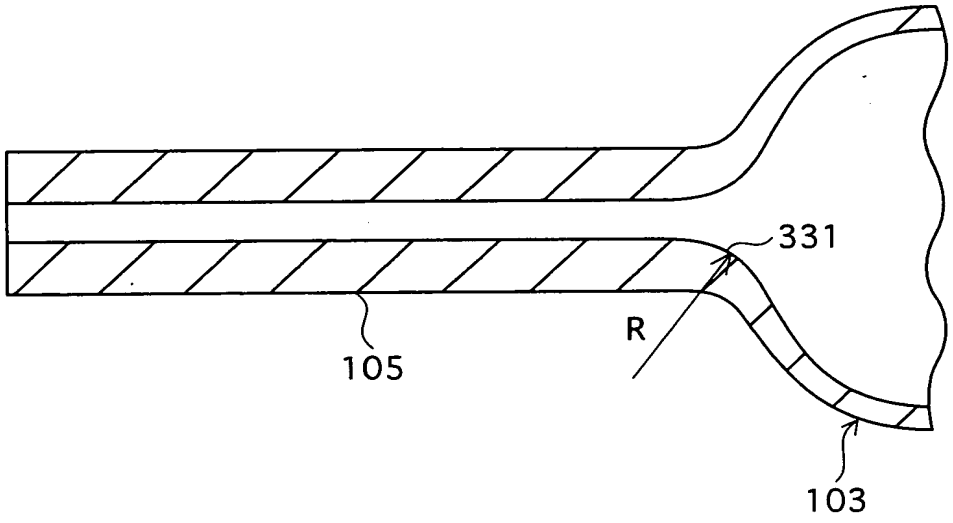

FIG.23

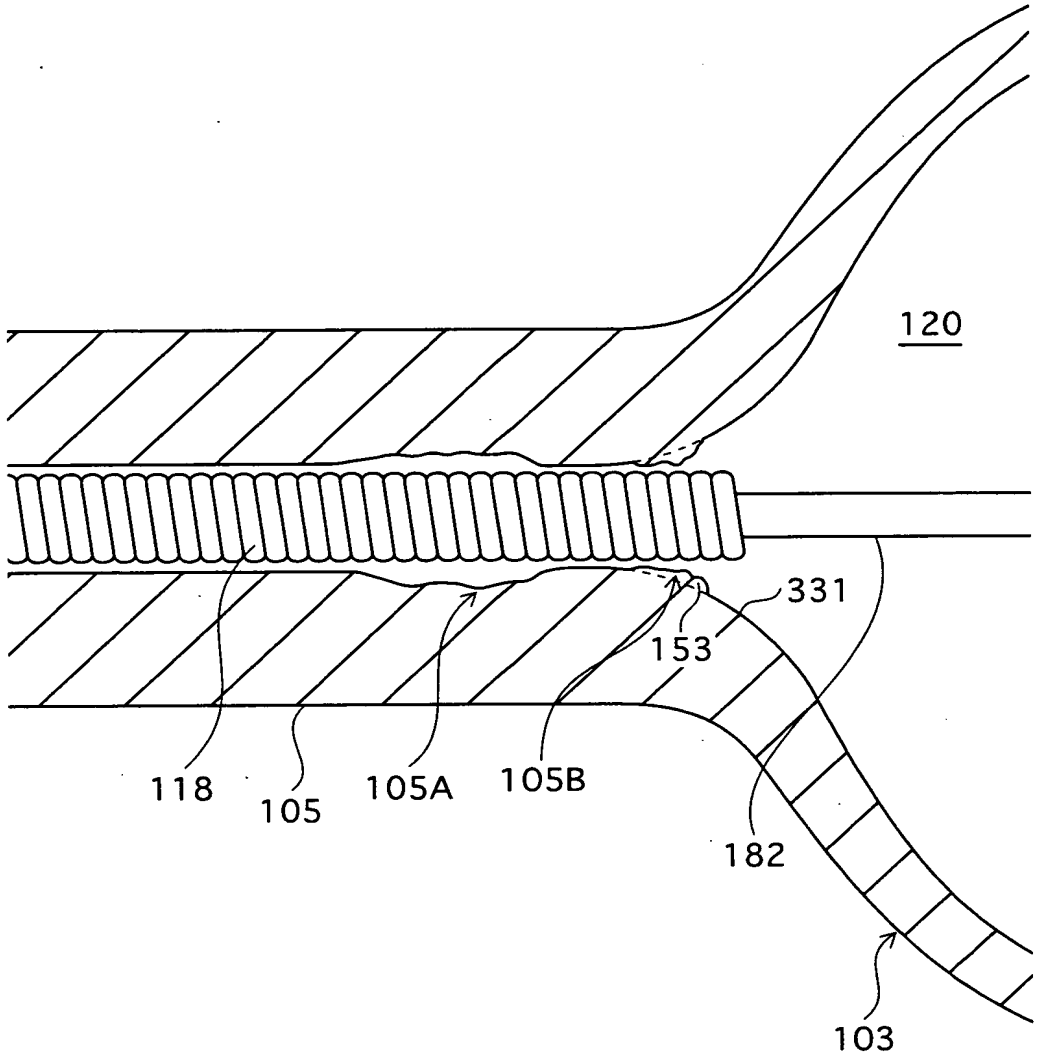

FIG. 24

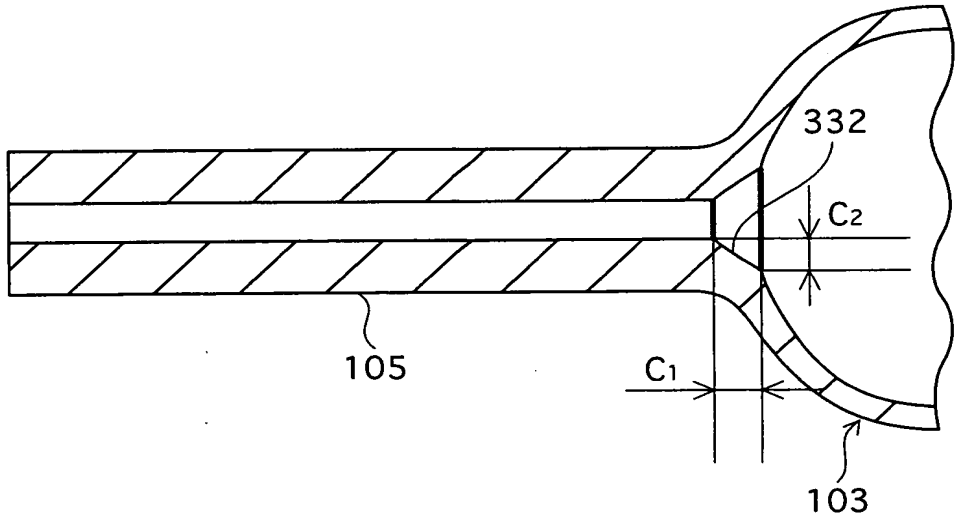

FIG.25A

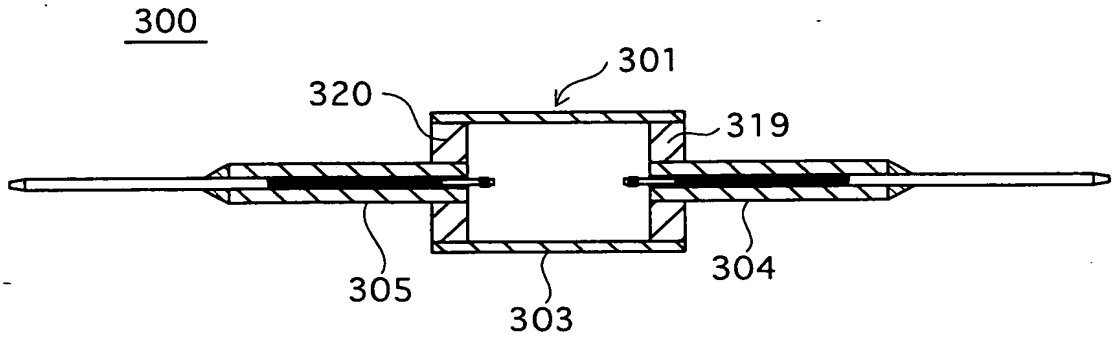

FIG.25B

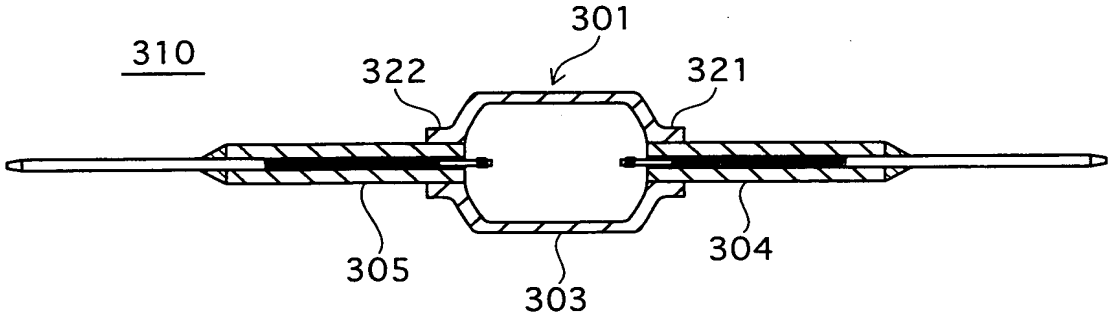

FIG.26